

**ABSTRACT**

A method for manufacturing a FBG having improved performances and an annealing-trimming apparatus for making the same are provided. The trimming and the annealing steps are advantageously combined into a single process in order to efficiently fabricate complex FBG filters with improved performance. The method comprises the steps of UV-writing a FBG in an optical fiber prior to annealing-trimming characteristics of the FBG by performing the sub-steps of monitoring characteristic data of the FBG while generating a controlled complex temperature profile along the FBG with a heating means according to the characteristic data for providing an accurate controlled annealing process of the FBG, thereby providing an accurate trimming thereof.